



*Kommer solenergirevolusjonen til Afrika?*

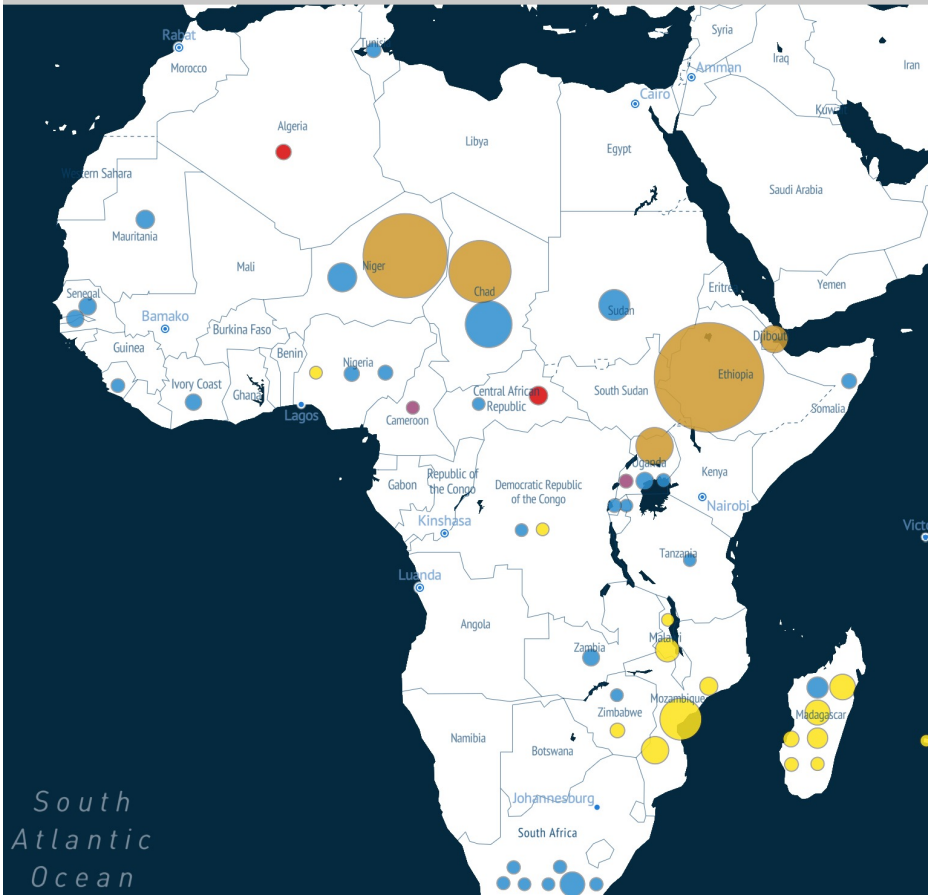
*Klimastiftelsen Frokostmøte 1.juni 2023*

*Adm.dir. Terje Osmundsen*

# Afrika og klima: Små utslipp, samfunnsødeleggende skader

## EXTREME WEATHER

Analysis: Africa's unreported extreme weather in 2022 and climate change



## Almost 250,000 flee floods in Somali city that 'became like an ocean'

Story by Reuters  
Updated 8:29 AM EDT, Thu May 18, 2023



## AFRICA: Climate change threatens security in West and Sahel

By Boris Ngounou - Published on April 18 2022 / Modified on April 18 2022



# Intro Empower New Energy

- Norsk utviklings- og investeringselskap etablert 2017 med fokus på solenergi for bedrifter og virksomheter I Afrika (“Impact investing”)
- Desentralisert: “Behind-the-meter” og “off-grid”.
- 12 investeringer i Egypt, Ghana, Nigeria og Marocco
- Oktober 2022: 800 millioner kroner egenkapital til 40-50 nye solinvesteringer
- Impact 2030: 500 000 tusen tonn CO2, 20 000 arbeidsplasser
- Investorer: Climate Investor One/Climate Fund Managers, Norfund, ElectriFi(EU), grunnleggerne samt 10 private norske
- 20 medarbeidere, 13 nasjonaliteter, 40 % kvinner, 9 lokasjoner



Editors' picks Business Energy Headlines Top Headlines

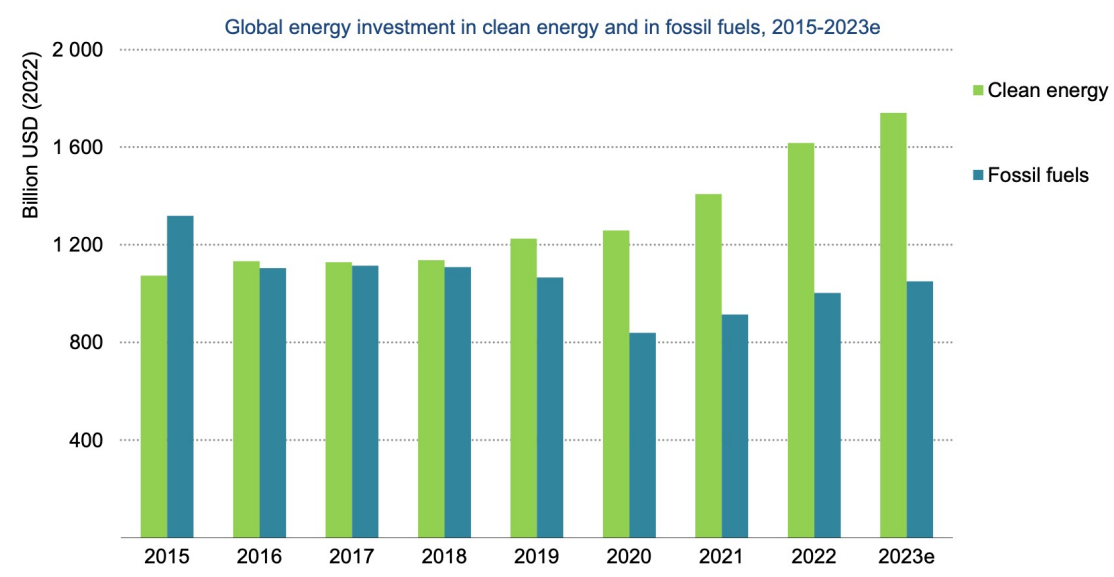
Norwegian-Ghanian solar investment shows the way for a greener industry in Ghana

November 30, 2021



# Fornybarrevolusjon globalt, men ikke i Afrika

## IEA: Turbofart i fornybarinvesteringene globalt



## Men noen land og regioner sakter akterut

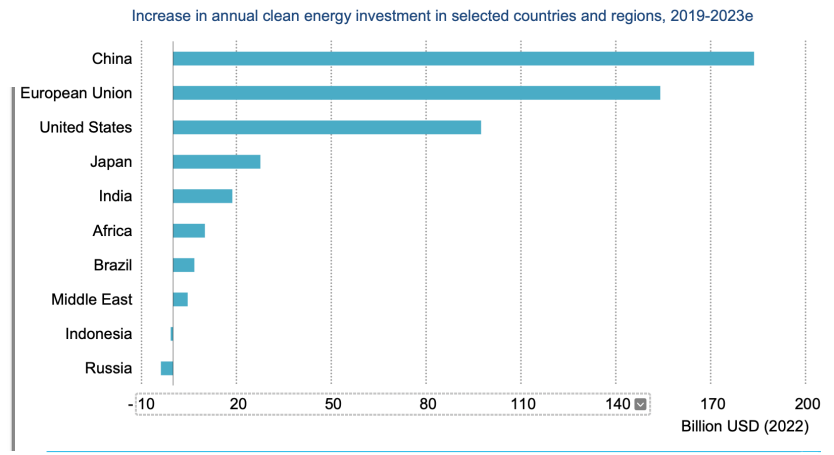
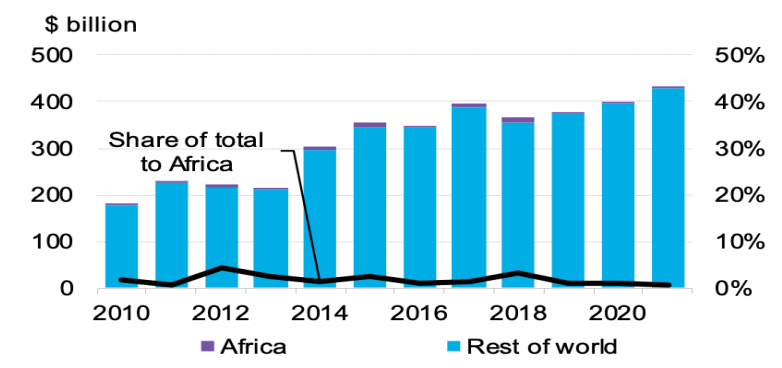
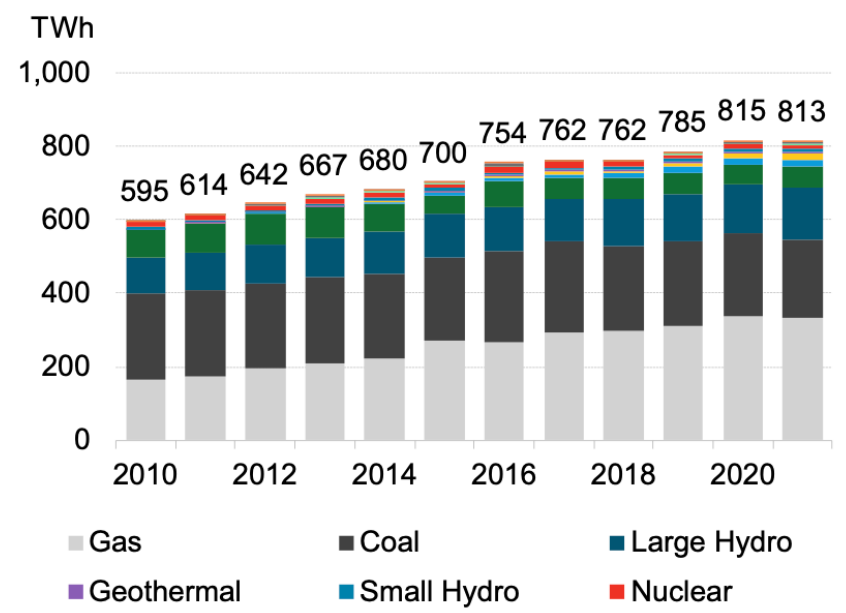


Figure 1: Global renewable energy asset investment by region

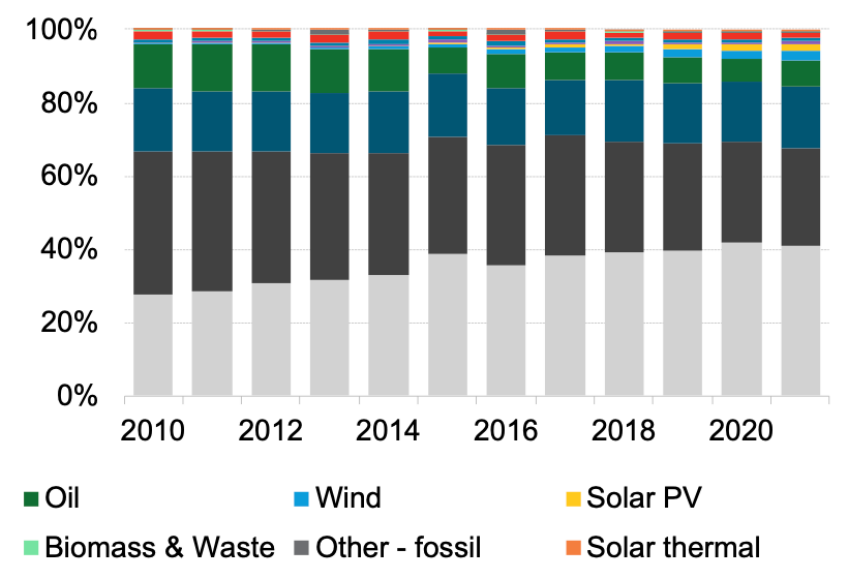


# Gass, kull og vannkraft dominerer strømnettene i Afrika

**Figure 14: Annual power generation by technology in Africa**



**Figure 15: Share of annual power generation by technology in Africa**

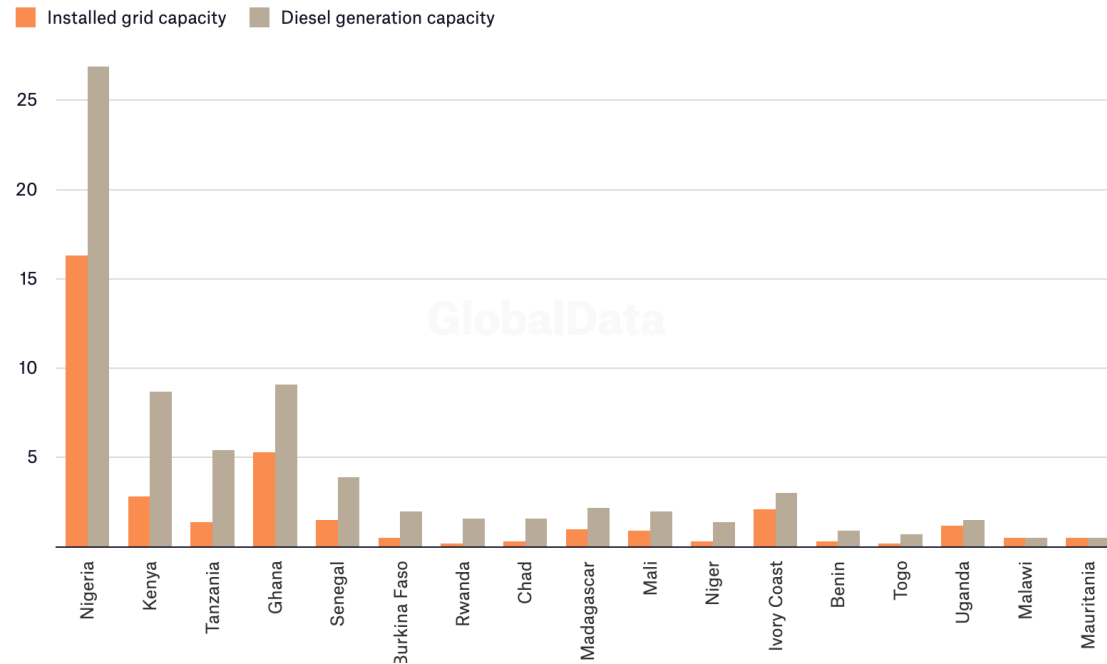


Source: BloombergNEF

# Afrika: Mer enn 100 GW dieselgeneratorer

## A total of 17 African countries have more diesel generator capacity than grid capacity

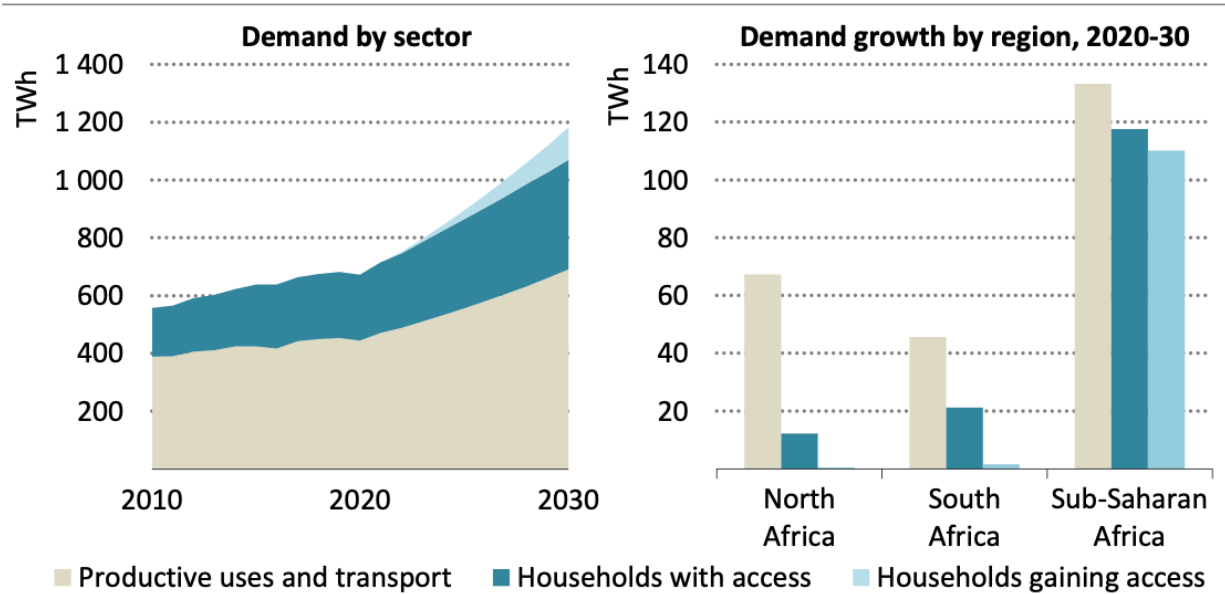
Countries by grid and off-grid diesel capacity (GW)



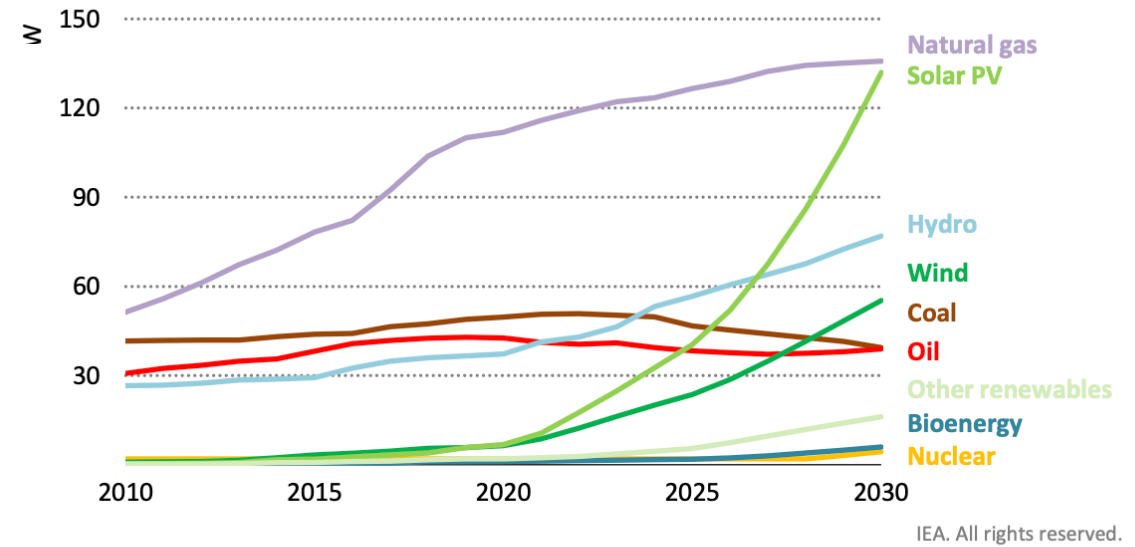
- West and Central Africa: Diesel gensets equal to more than 40 % of total grid capacity
- CO2 emissions from diesel gensets: At least 100 mill tons p.a, close to 10 % of total energy-and industry-related emissions

# IEAs Sustainable Africa Scenario: Solkraft og gass må dekke veksten i el-eterspørsel

Etterspørselen doubles på 10 år



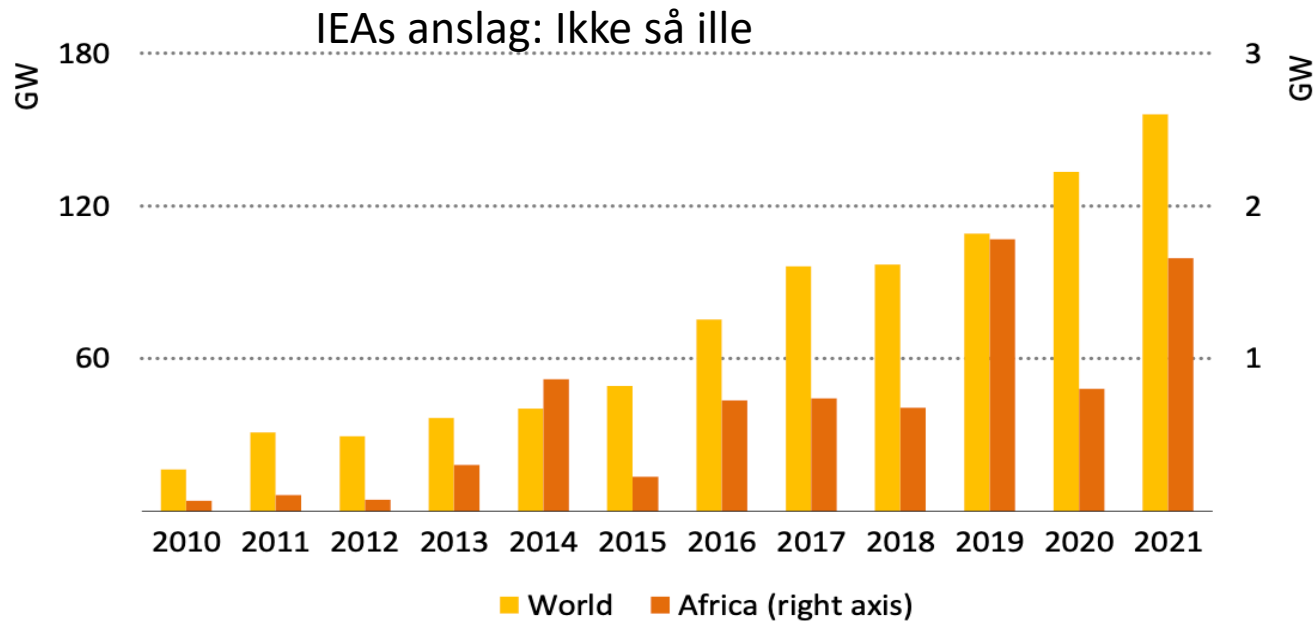
IEAs SAS-scenario: Solkraft i Africa øker fra 10 til 135 GW på 10 år!



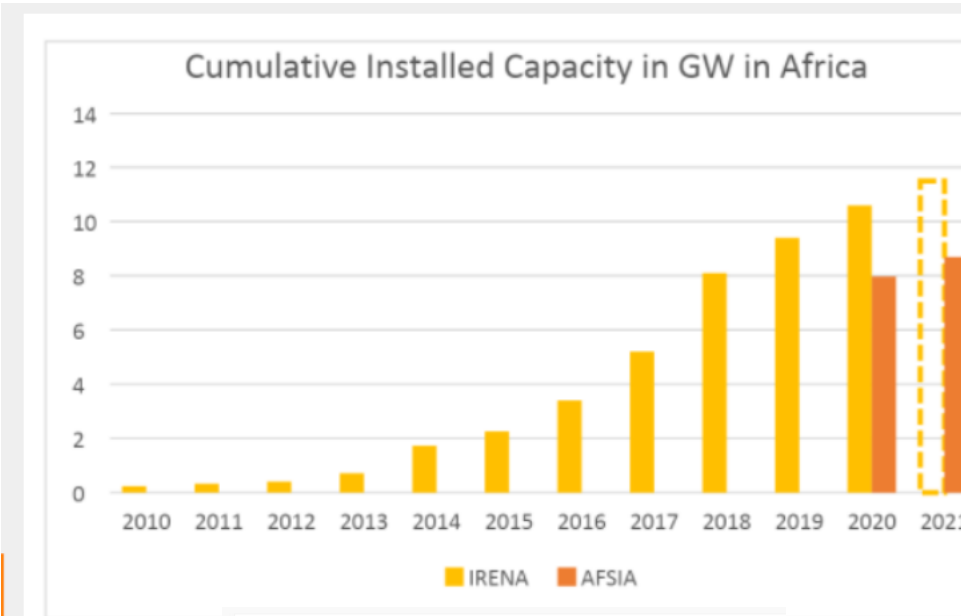
Solar PV, hydropower and wind capacity surpass that of coal and oil this decade, while the dominant position of natural gas is overturned in the 2030s

Note: SAS = Sustainable Africa Scenario.

# Afrika i 2022: Mindre enn 1 GW; 0,4 % av ny solkraftenergi globalt



## AFSIA: Svært ille



## IRENA: Ganske ille

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IRENA

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WORLD	ANNUAL INSTALLED	41.6	32.3	30.1	37	39	47.7	71.9	94.9	94.2	101.3	126	191
	CUMULATIVE	41.6	73.9	104	141	180	227.7	299.6	394.5	488.7	590	716	907
AFRICA	ANNUAL INSTALLED		0.09	0.08	0.31	1.01	0.53	1.14	1.8	2.9	1.3	1.2	0.90
	CUMULATIVE	0.24	0.33	0.41	0.72	1.73	2.26	3.4	5.2	8.1	9.4	10.6	11.5
%	INSTALLED VS. WORLD		0.3%	0.3%	0.8%	2.6%	1.1%	1.6%	1.9%	3.1%	1.3%	1.0%	0.5%
	CUMULATIVE VS. WORLD		0.4%	0.4%	0.5%	1.0%	1.0%	1.1%	1.3%	1.7%	1.6%	1.5%	1.3%

## Will Africa be left behind in the scramble for renewables?

Buoyant predictions about a rosy future for African photovoltaics, based on the continent's abundant solar resources, continue to overlook the difficulties of securing investment, as Empower New Energy co-founder and CEO **Terje Osmundsen** explains, referring to a report published by the Africa Solar Industry Association at the World Future Energy Summit in Abu Dhabi today.

JANUARY 18, 2023 **TERJE OSMUNDSEN**

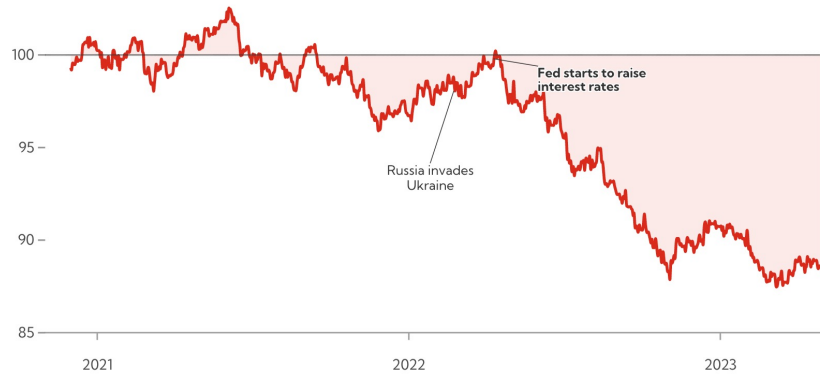
COMMERCIAL & INDUSTRIAL PV | DISTRIBUTED STORAGE | FINANCE | MARKETS | MARKETS & POLICY | MICROGRID  
OPINION & ANALYSIS | POLICY | SUSTAINABILITY | UTILITY SCALE PV | SUB-SAHARAN AFRICA





# Hvorfor så vanskelig i Afrika? (og deler av Asia og Latin Amerika)

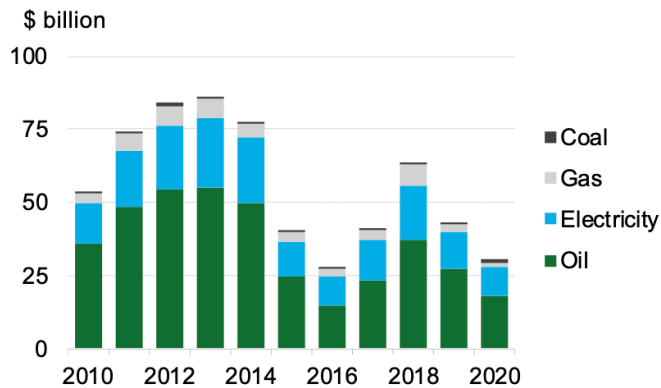
Exchange rates against US dollar  
(index, Sep. 1, 2021 = 100, trade-weighted average across countries)



Source: Bloomberg. - Note: The average nominal exchange rate is weighted by the sum of exports and imports.



Figure 19: Annual fossil fuel subsidies in Africa

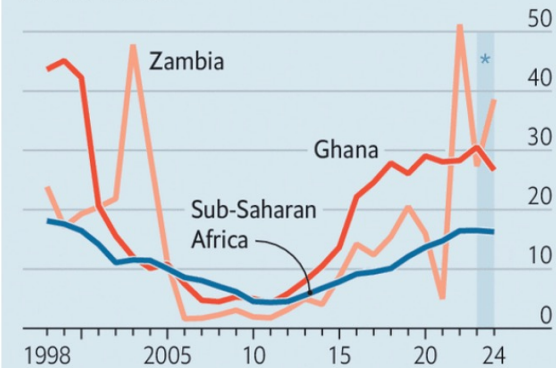


Source: BloombergNEF, Organisation for Economic Co-Operative Development (IISD).

- Forgjeldede utility-selskaper og stater
- Høye kapitalkostnader for å dekke valutarisiko, motpartsrisiko, politisk risiko, mm
- Null incentiver: Ingen skattepakker, feed-in-tariffer, sertifikater eller bindende fornybarmål
- Subsidierte drivstoff- og strømpriser
- Reguleringer som vanskeliggjør PPA-er (kraftsavgiftsavtaler) mellom private virksomheter

## Gathering storm

External government debt service  
As % of revenue



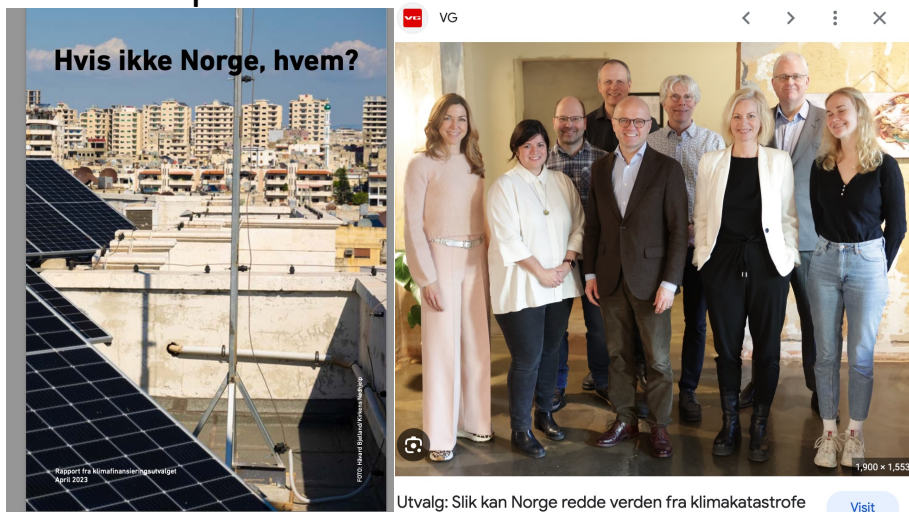
Government-bond yields spread over US Treasuries, percentage points



\*Forecast †J.P. Morgan Emerging Market Bond Index Global  
Sources: World Bank; IMF; Debt Justice; J.P. Morgan

# Hva kan gjøres? To norske ekspertutvalg viser vei

April 2023



Norge bør gå foran i å etablere en koalisjon av villige bidragsytere.

- «**Global Green Guarantees**». Et globalt grønt garanti-initiativ for å utløse massive private investeringer i fornybar energi og naturkapital:
- «**New Climate Deal**». Oppkapitalisering av Verdensbanken. IMF's Special Drawing Rights (SDR) gjøres tilgjengelige for klimafinansiering.
- Norske kanaler**. Rask oppkapitalisering av Klimainvesteringsfondet og organisering av NBIMs mandat for investeringer i unotert infrastruktur for fornybar energi i et eget fond: NBIM
- Årlig **klimafinansiering** fra Norge: En tidobling eller 67 milliarder kroner som tilsvarer Norges forholdsvis (rike land) andel av «klimafinansieringsgapet»

Mai 2023



Utenriksdepartementet

**Regjeringsoppnevnt utvalg  
foreslår å doble norsk bistand**



Investering i en teiles fremtid

Et nytt rammeverk for utviklingspolitikken

- Foreslår å dele utviklingsbudsjettet i to:
  - Kat 1 for fattigdomsbekjempelse og humanitær bistand: 0.7 prosent av BNI
  - Kat 2 for globale fellesgoder som klima, global helse mm: Trappes opp til 0,7 prosent av BNI
  - Garantier og andre virkemidler for å utløse private investeringer i u-land til 0.7 prosent av BNI

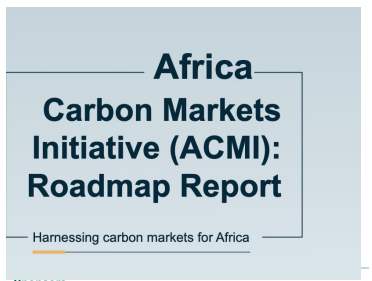
# Karbonkreditter – en potensiell gamechanger

McKinsey estimates that voluntary demand for carbon credits could increase by a factor of 15 or more by 2030 to about \$50 billion, and by a factor of 100 by 2050

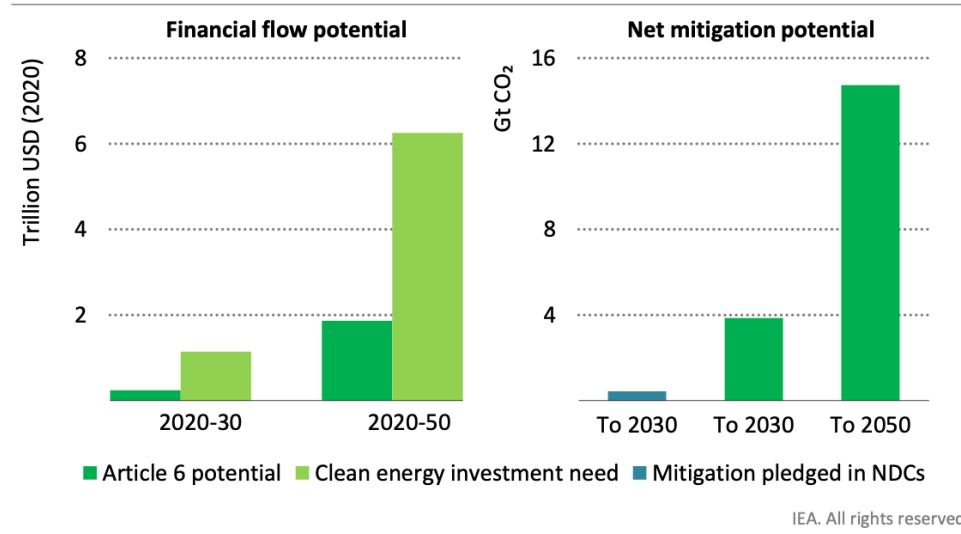


IEA: Carbon markets can unlock more than 200 billion dollars for clean energy in Africa by 2030

Terje Osmundsen  
Clean energy innovator and investor. Founder/CEO Empower New Energy. 9 articles  
June 21, 2022



IEA: Paris-avtalens Art 6 kan utløse "kreditter" verdt over 200 milliarder dollar innen 2030



ACMI: "Voluntary markets" kan kick- starte finansiering av klimatiltak I Afrika

- ❑ Grow African carbon credits retirements ~19-fold from ~16 MtCO<sub>2</sub>e retired in 2020 to ~300 MtCO<sub>2</sub>e per annum by 2030 and up to 1.5-2.5 GtCO<sub>2</sub>e by 2050;
- ❑ Create or support 30 million jobs by 2030 and more than 100 million jobs by 2050
- ❑ Raise the quality and integrity of African credits to mobilize up to US\$6 billion by 2030 and more than US\$100 billion per annum by 2050;

Vil solkraft kvalifisere som karbonkreditt? Et spørsmål om metodologi.

# Hva kan Norge gjøre? Mine anbefalinger

- Ikke “mer av det samme”, men fokus på markedsbaserte incentiver som senker risikoen og øker avkastningsmulighetene for private utviklere og investorer
- Tilskudd, hybridinstrumenter og lavrentelån er viktig, men garantier kan gi mest “buck for the money”.
- Offentlig-privat partnerskap er bra, men privat - privat gir raskest resultater

Garantier for å utløse private solkraftinvesteringer i Afrika:

- Privat-privat: Garanterte minstepriser for kvalitetssikrede karbonkreditter innen ren energi. Partnerskap med African Carbon Market Initiative for å sikre likviditet til karbonmarkedet under utvikling.  
Regne-eksempel: Ved å øremerke 5 mrd kroner for å garantere en fremtidig minstepris eks \$ 20/tonCO2 for ren energi-kreditter i Afrika, vil Norge kunne utløse investeringer som reduserer CO2 utslipp med 25 millioner tonn per år.
- Privat-privat: Støtte til garantier/hedging mot tap ved større valutakursendringer, partnerskap med TCX (The Currency Exchange Fund) for å redusere kostnadene og øke tilgjengelighet ved TCX produkter
- Offentlig-privat: Vurdere statsgarantiordning som beskytter investorer ved kontraktsbrudd o.l. etter modell fra SIDA (Sverige).

# Takk for oppmerksomheten

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